KMWorld

The high cost of not finding information

By Susan Feldman - Posted Mar 1, 2004

By Susan Feldman

On Sept 23, 1999, NASA's Mars Climate Orbiter spacecraft disappeared. The spacecraft had flown nine-and-a-half months and 416 million miles flawlessly. Scientists were stumped at first about what had gone wrong. They had checked and rechecked the calculations. It turned out that unbeknownst to the metric-based NASA, its contractor had submitted acceleration data in pounds of force instead of the metric equivalent, newtons. By not converting the pounds to the metric measurement, the spacecraft was lost. A costly information disaster. And an embarrassing one.

In an increasingly information-based world, we turn out complex products that are less tangible than they are knowledge-based. As was the case with the Mars Orbiter, we aren't absolutely sure that they will fly until they are launched. Software, market analyses, weather advisories, aircraft, tires and other products, decisions to invade other countries—these are all based on planning and simulations that rely on having the right information. The very complexity of the decisions we make and the products we manufacture makes it impossible to check, test and retest them adequately enough to be sure that they will function properly in any circumstance. Information disasters are a growing threat, and one that few businesses can ignore.

Information disasters

There are all kinds of information disasters. Some are caused by wrong information. Some are caused by outdated information. For instance, many years ago a manufacturing company designed and built a new product based on a part that was no longer manufactured. They had looked in an old parts catalog.

Missing or incomplete information plagues many projects. One of the most visible examples happened in summer 2001 when a volunteer on a Johns Hopkins research project died when she was given hexamethonium to inhale. Researchers had done a search on PubMed and the Web to find out if there were adverse effects associated with its use. What the researchers didn't know was that PubMed only goes back to 1966. The research on hexamethonium was done in the 1950s. They also missed standard professional sources of information like Toxline. Incomplete information is responsible for the year that a major aircraft manufacturer wasted developing a new product that its competitor had already produced 10 years earlier.

Finally, there is the increasing problem of too much information. In the case of the Three Mile Island Nuclear Power Plant disaster, for instance, operators had so many error messages thrown at them that they couldn't identify the main cause of the problem. With disastrous results. One wonders whether the recent Northeast blackout can also be attributed to that cause.

Disasters of lesser or similar proportions happen every day to enterprises that are dependent on good information delivered in a timely manner to the people who need it. There are several reasons for this dilemma. First, information is scattered in multiple repositories and databases all over most organizations. No one knows what exists or where it is, and there is no single unified access point to it. That puts the enterprise at risk, particularly after the passage of recent legislation like the Sarbanes-Oxley Act that requires executives to take responsibility for what happens within their companies.

Second, with the advent of the World Wide Web, every professional worker has become a searcher, but without either search training or a roadmap of what he or she is searching. Without information training and skills, most people don't know where to look, how to ask for what they are seeking or when it is OK to stop looking. One answer looks very much like another unless the searcher understands what constitutes valid information.

Third, most professionals are inundated with too much information, and they have very few tools to help them handle the flood. Everyone seems to be working longer hours and getting less and less done. We are bombarded by e-mail, copies of presentations, alerts of new interesting articles, meetings and all of the other information trappings that go with being a knowledge worker. We spend hours trying to track down something that we found only yesterday, but it seems to have disappeared. We try to reach colleagues who have missing pieces of the puzzle, and they and their computers with the notes from that meeting in September have disappeared for vacation or, worse, left the company altogether. In short, we spend a lot of time spinning our wheels looking for things and not finding them.

The costs of not finding information

There really is no metric we can use to compare the value of a good decision to a bad one. How do we know that a project has taken twice as long as it should have for lack of access to information? The fact is that knowledge workers rarely turn out measurable products, and each project is slightly different from the one before. If they can't find the information on which to base their output, they may have to submit poor quality work to meet a deadline. Their burnout rate may be higher because job satisfaction is low when workers spend their days unsuccessfully searching and reworking information.

In 2001, IDC began to gather data on what not finding information might cost an organization. We looked at knowledge worker productivity, as well as at lost e-commerce revenue and the increased costs that answering a call center call with a person instead of an automated search system would bring. Here's what we found:

How successful are most searchers?

We know that roughly 50% of most Web searches are abandoned. That translates into 50% fewer online sales, 50% more frustrated customers trying to solve a problem or get information, and 50% more phone calls that must be handled by a person rather than by automatic systems. At an average cost of $5 per phone call as opposed to less than $1 per automated call or mere pennies for finding an answer online, that is expensive.

Studies by IDC, as well as organizations such as the Working Council of CIOs, AIIM, the Ford Motor Company and Reuters have found that:

- Knowledge workers spend from 15% to 35% of their time searching for information.
- Searchers are successful in finding what they seek 50% of the time or less, according to both Web search engines and our own surveys. An IDC study in 2001 ("Quantifying Enterprise Search," IDC, May 2002) found that only 21% of respondents said they found the information they needed 85% to100% of the time (see Figure 1).
- 40% of corporate users reported that they can not find the information they need to do their jobs on their intranets.

How much time is spent reworking or recreating information because it has not been located?

Recent research on knowledge work shows that knowledge workers spend more time recreating existing information than they do turning out information that does not already exist. Some studies suggest that 90% of the time that knowledge workers spend in creating new reports or other products is spent in recreating information that already exists. In 1999, a European study by IDC examined that phenomenon, called the "knowledge work deficit," and concluded that the cost of intellectual rework, substandard performance and inability to find knowledge resources was $5,000 per worker per year.

Using those studies as a basis, we set out to quantify the impact that not finding information might have on a typical enterprise of a thousand knowledge workers who earned an average salary plus benefits of $80,000 a year. We looked at:

- how much time typical knowledge workers spend searching every week,
- what their success is in finding the information they are seeking,
- how much time they have to spend recreating work that exists already but that they couldn't find,
- what the opportunity cost to the organization is,
- the cost of lost revenues from e-commerce if customers can't find the products they want to buy, and
- increased call center and online technical support costs because calls are escalated to a person rather than being answered automatically.

Here's what we found

- The time spent looking for and not finding information costs our mythical organization a total of $6 million a year. That doesn't include opportunity costs or the costs of reworking information that exists but can't be located.
- The cost of reworking information because it hasn't been found costs that organization a further $12 million a year (15% of time spent in duplicating existing information).
- Not locating and retrieving information has an opportunity cost of more than $15 million annually. Accelerating the introduction of a blockbuster drug or delaying its demotion to generic status by just one day through use of information access software could mean $8.5 million or more each day.
- Increased e-commerce revenue pays for the improved search software in a couple of months. Companies like Charles Schwab, Lands' End, Staples or Macy's have increased their commerce revenue by amounts like $125,000 per month, or 400% in average deal size.
- Call center costs and volumes have been decreased by 30% and more when better search and browsing tools were implemented.

What we can't do is measure the increase in creativity and original thinking that might be unleashed if knowledge workers had more time to think and were not frustrated with floundering around online. More information on how we calculated these costs, as well as additional data on e-commerce can be found in "The High Cost of Not Finding Information," IDC, June 2003.

Information disasters are caused not by lack of information, but rather by not connecting the right information to the right people at the right time. People use information within the context of what they are doing. They need to have access to the right information, but only when they need it. And they need to be assured that the access is guaranteed, easy, fast and reliable.

The quest for information systems that deliver the right information--and only the right information--at the right time to the right people is by no means over. But companies like iPhrase, Inxightk, InQuira, Mindfabric, Siderean, Endeca, ClearForest, Verity, Autonomy, FAST, or Convera have made great strides in developing the next generation of search and other more advanced finding tools. Organizations cannot afford to ignore the technologies that are available today. The cost of not finding information is simply too high.

Finding information

What do knowledge workers need in order to interact with information efficiently?

The first thing knowledge workers need is easy access to information through a single interface. One search should get them all the information in a company, no matter where it resides or what format it is in. And that is not so easy. Think about what is and is not easily available on your own intranets. Can salespeople search your training materials that are in PowerPoint presentations, video and audio clips? How does a marketing person find out what graphics have been used and approved in the past five years? Most importantly, how do people in your organization find out who is working on what topic anywhere in the world and what they have written about it? Can they get at e-mail exchanges that may form the basis for a decision, or at the log of an online discussion for which no one took notes?

Knowledge workers also need to understand what information is accessible so that they will know where the gaps are. They need to know how to retrieve it. And they need to know whom to ask for more information or for help.

We need to embed both people and information within a system that fits how people in the organization work, that understands the workflow and when the needs for information arise. People need to use information within the context of their jobs and their environment. It's not just the information that is vital to the organization. It's the exchange of information, the information within the context of the people and the situation of the moment that needs to be recorded and tracked so that when people disappear, the reasons why decisions are made remain behind.

Progress

Among the companies that have made strides in developing next-generation search and advanced find tools are:

Autonomy

ClearForest

Convera

Endeca

FAST

InQuira

Inxight iPhrase

Mindfabric

Siderean

Verity

—Susan Feldman

Susan Feldman is research VP, content technologies, IDC, e-mail sfeldman@idc.com.